

15 ²⁵
~~25~~ (New) A flexible milk hose according to claim ¹³~~17~~,
wherein the milk hose is made of plastic.

B16
²⁶
~~30~~ (New) A milk hose according to claim ¹³~~17~~, wherein
the milk hose is adapted to be stretched and compressed in the
longitudinal direction.

could.
²⁷
~~31~~ (New) A flexible milk hose according to claim 1,
wherein the milk hose is made of plastic.

²⁸
~~32~~ (New) A milk hose according to claim 1, wherein the
milk hose is adapted to be stretched and compressed in the
longitudinal direction.

REMARKS

A new title has been provided to conform with the title appearing in the English translation of the specification. The specification has been amended to include headings and minor word revisions for clarity. Claims 1, 5, 7, 9, 11, 13 and 15 have been amended. Claims 2-4 and 8 have been canceled without prejudice. Claims 1, 5-7 and 9-16 remain in the application with new Claims 17-32. Applicant has enclosed proposed drawing changes to add reference numeral "4" in Figure 2, and reference numeral "15" in Figure 3 (support is found at page 8, line 20). Reconsideration of the application, as amended, is requested.

The Examiner objected to Claim 9 due to an informality. Applicant has amended Claim 9 as requested by the Examiner.

The Examiner rejected Claims 7 and 8 under 35 U.S.C. §112 due to insufficient antecedent basis. The Applicant has amended Claim 7 in manner believed to overcome the instant rejection.

The Examiner rejected Claims 1, 2, 6 and 9 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3 079 891 (Miller).

Applicant has amended Claim 1 to recite that the flexible milk hose is made from a uniform material, the centre piece has a substantially constant interior diameter, and that the centre piece includes spaced-apart reinforcement elements which at least partially enclose a circumference of a predetermined area of the centre piece. Miller does not teach or suggest a flexible milk hose as defined in amended Claim 1.

More specifically, the milk hose of Miller as shown in Figures 2 and 5 teaches away from a flexible milk hose having a constant interior diameter by having an interior that varies with the convolutions (28 or 28''') and portions (26) which separate the convolutions. This varying interior diameter of Miller causes the flow of milk to be substantially impaired by interaction with the inner surface, in contrast to the Applicant's invention as defined in Claim 1, wherein a substantially undisturbed milk flow is provided. In addition, this feature improves cleaning due to the absence of vortices and indentations. Miller also discloses other milk hoses in Figures 3 and 4, but these do not include spaced-apart reinforcement elements. Further, Miller does not teach or disclose an increase of flexibility towards a middle of a centre piece of the milk hose. In view of the above, Claim 1 is believed to patentably distinguish over Miller.

Claim 2 is canceled herein, and Claims 6 and 9 are believed allowable by virtue of their dependence from allowable Claim 1, and contain additional features which further distinguish over Miller.

Claims 3-5 stand rejected under 35 U.S.C. §103 as unpatentable over Miller and Anderson. The Applicant hereby cancels Claims 3 and 4. Claim 5 has been amended to be dependent on Claim 1. Neither Miller nor Anderson teach or disclose that the distance between two respective neighbouring reinforcement elements decreases from the middle of the centre piece towards the respective first and second end portions, as recited in Claim 5.

3

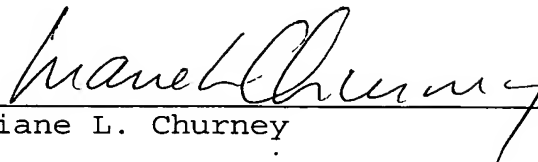
The Examiner rejected Claims 10-16 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3 079 891 (Miller). Claims 10-16 depend from what is believed to be an allowable Claim 1, are allowable therewith, and include additional features which further distinguish over Miller.

Newly added Claims 17-32 are allowable over Miller and Anderson, whether taken alone or in combination with one another. Neither Miller nor Anderson teach or disclose a flexible milk hose having an interior diameter which is substantially constant, and also having a centre piece including a plurality of axially spaced reinforcement elements which extend circumferentially along an exterior of the centre piece and permit the centre piece to have a greater flexibility than its end portions, as recited in new independent Claim 17. As discussed above, Miller does not teach a milk hose with a substantially constant interior diameter and a plurality of axially spaced reinforcement elements. With respect to Anderson, same discloses a flexible milk hose whose resistance to bending is increased by providing coiled or other suitable springs along the entire length of the milk hose. The flexibility of the Anderson hose does not increase towards the middle of the centre piece of the milk hose. Anderson discloses in Figures 3 and 4, a thickness of the hose material being selected so as to provide for the required resistance to bending, and therefore these embodiments do not disclose a hose with an increased degree of flexibility in a centre piece of a milk hose. Moreover, these embodiments in Figures 3 and 4 do not include spaced-apart reinforcement elements located in the centre piece of the milk hose. Claim 17 is therefore believed allowable as presented. Claims 18-30 depend from allowable Claim 17, are allowable therewith, and include additional features which further distinguish over Miller, Anderson, and the other art of record.

Further and favorable consideration of this application is respectfully solicited.

B

Respectfully submitted,


Liane L. Churney

LLC/S/cc

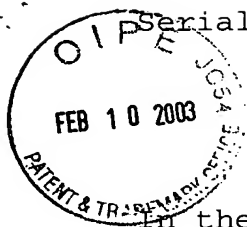
FLYNN, THIEL, BOUTELL
& TANIS, P.C.
2026 Rambling Road
Kalamazoo, MI 49008-1631
Phone: (269) 381-1156
Fax: (269) 381-5465

Dale H. Thiel	Reg. No. 24	323
David G. Boutell	Reg. No. 25	072
Ronald J. Tanis	Reg. No. 22	724
Terryence F. Chapman	Reg. No. 32	549
Mark L. Maki	Reg. No. 36	589
David S. Goldenberg	Reg. No. 31	257
Sidney B. Williams, Jr.	Reg. No. 24	949
Liane L. Churney	Reg. No. 40	694
Brian R. Tumm	Reg. No. 36	328
Tricia R. Cobb	Reg. No. 44	621
Robert J. Sayfie	Reg. No. 37	714

Encl: Marked-up Version of Amendments
Letter to Official Draftsperson
Post Card

136.0112

February 3, 2003

MARKED-UP VERSION OF AMENDMENTS

RECEIVED
FEB 19 2003
GROUP 3600

In the Specification:

Amend the paragraph beginning at page 3, line 5, as follows:

It is therefore the object of the present invention to provide short milk hoses which ~~fulfil~~fulfill the requirements mentioned at the beginning more effectively than the conventional milk hoses used.

Amend the paragraph beginning at page 3, line 12, as follows:

The structural design of the centre piece of the milk hose permits, on the basis of the increase in elasticity in a defined area (centre piece) of the milk hose, an absorption of twisting and bending forces by elastic deformation, the end portions, especially the transitions to the connecting necks, having hardly any load applied thereto. This effect is supported especially by the flexibility of the milk hose which increases towards the centre, since the radius of curvature of the milk hose is larger in the vicinity of the end portions than in the area of the centre of the hose and since, consequently, the mechanical load applied to the end portions is ~~less high~~not as large.

Amend the paragraph beginning at page 8, line 29, as follows:

When the milking process is taking place and when the milking unit is being handled, the positions of the teat cups and, consequently, of the comparatively heavy directional valve will change to a greater or lesser degree due to mechanical influences and pressure fluctuations. On the basis of the improved elasticity of the short milk hose 4 according to the embodiments of the present invention, the respective teat cup can follow the movements, without these small changes in position being transferred to the directional valve and thus to the neighbouring teat cups to an extent which would be worth mentioning. It ~~will~~is advantageous when the area in

B

which the short milk hose 4 has a particularly high flexibility is located in the middle and diminishes towards the sides. This has the effect that especially the mechanical forces acting on the short milk hose are substantially reduced in the areas of the connecting necks 3 and 8, whereby the risk of a fracture of material due to material fatigue will decrease essentially in this area. A further advantage in comparison with the short milk hoses according to the prior art is to be seen in the fact that the short milk hose according to the present invention has a certain flexibility also in the axial direction of the hose. This permits especially a compensation of changes in the position of the teat cup, which are caused during the milking operation due to the initially described "climbing" effect of the teat cup, i.e. the "climbing" of a teat cup on a teat which has already been emptied will not lead to any substantial change in position of the multiway valve, a possibly remaining minor change in position being, in turn, decoupled from the other teat cups due to the short milk hoses according to the present invention.

In the Claims:

Claims 1, 5, 7, 9, 11, 13 and 15 are amended as follows:

1. (Amended) A flexible milk hose made from a uniform material for connecting a teat cup to a multiway valve in an automatic milking plant, comprising:

a first end portion for connection to a connecting neck of the teat cup;

a second end portion for connection to a connecting neck of the multiway valve, and;

a centre piece, wherein having a substantially constant interior diameter, and including spaced-apart reinforcement elements which at least partially enclose a circumference of a predetermined area of the centre piece, the centre piece ~~hashaving~~ a highergreater

flexibility than said first and second end portions, said ~~higher~~ flexibility increasing towards ~~the~~a middle of the centre piece.

5. (Twice Amended) A flexible milk hose according to claim ~~3~~1, wherein

the distance between two respective neighbouring reinforcement elements decreases from the middle of the centre piece towards the respective first and second end portions.

7. (Amended) A flexible milk hose according to claim 6, wherein

~~a~~the wall thickness of ~~the~~each of said spaced-apart elevations of material exceeds ~~the~~a wall thickness in an area located between ~~neighbouring~~two adjacent spaced-apart elevations of material.

9. (Twice Amended) A flexible milk hose according to claim 1, wherein

the first and second end ~~portion~~portions each have ~~each~~ formed thereon a reinforcement element.

11. (Twice Amended) A flexible milk hose according to claim 1, wherein

the ~~centre piece~~hose consists, at least partially, of a permanently chemically passive and stable material which will not give off secretions to the milk during the milking operation.

13. (Twice Amended) A flexible milk hose according to claim ~~2~~1, wherein

~~the~~a wall thickness of the reinforcement elements is smaller in the area of the middle of the centre piece than the wall thickness of the reinforcement elements

arranged in the ~~boundary area~~areas of the centre piece
closest to each end portion.

15. (Twice Amended) A flexible milk hose according
to claim 21, wherein

~~the~~a wall thickness of ~~the~~an intermediate ~~area~~area
between two neighbouring reinforcement elements in the
area of the middle of the centre piece is smaller than
the wall thickness of the intermediate ~~area~~area of the
reinforcement elements arranged in the ~~boundary area~~areas
of said centre piece closest to each end portion.